

Appl. No. 10/774,326
Amdt. Dated October 21, 2005
Reply to Final Office Action of June 27, 2005

Attorney Docket No. 81846.0035
Customer No. 26021

REMARKS

This application has been carefully reviewed in light of the Final Office Action dated June 27, 2005. Claims 1, 4-5, 7, 13-17 and 21-24 remain in this application. Claims 1, 7, 13, and 17 are the independent claims. Claims 1, 5, 7 and 13-16 have been amended. Claims 2-3, 6, 8-12, and 18-20 have been cancelled without prejudice. Claims 21-24 have been added. It is believed that no new matter is involved in the arguments amendments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Claim Language Suggestions

On page 2 of the Office Action, the Examiner suggested that "the tile" at line 3 of Claim 5 be changed to "the adjacent tile". In response, Claim 5 has been amended accordingly.

Claim Objections

Claim 15 was objected to for informalities. The Examiner suggested that the word "which" at line 2 of Claim 15 be inserted after "strips". In response, Claim 15 has been amended accordingly. Reconsideration and withdrawal of the above objection are respectfully requested

Non-Art-Based Rejections

Claims 1, 4-6 and 13-16 were rejected under 35 USC §112, second paragraph, for indefiniteness. In response, these claims have been amended to comply with 35 USC §112. Reconsideration and withdrawal of the above rejections are respectfully requested.

Art-Based Rejections

Claims 13-17 were rejected under 35 USC §102(b) over JPN 2000-226908 (Hiroshi et al.); Claims 7 and 11-12 were rejected under 35 USC §102(b) over JPN 11-200561 (Yoshitaka et al.); Claims 1, 4-5, 7 and 11-12 were rejected under 35 USC §103(a) over Yoshitaka in view of USPN 6,525,264 (Ouchida); and Claim 6 was rejected under 35 USC §103(a) over Yoshitaka in view of USPN 6,365,824 (Nakazima). Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and arguments below.

The Hiroshi Reference

Hiroshi is directed to a solar battery module fixed to base material of roof tiles and to preventing the solar battery module from floating up from the roof tile by wind force blowing on the roof. (*See, Hiroshi, Abstract; Paragraph [0007]*).

The Yoshitaka Reference

Yoshitaka is directed to a solar cell holding tile that is positioned on a sheathing roof board by utilizing a batten for holding a tile. (*See, Yoshitaka, Abstract; Paragraphs [0004]-[0008]*).

The Ouchida Reference

Ouchida is directed to a thin-film solar cell module. The thin-film solar cell module of a light transmission type includes a light-transmissive substrate, a front electrode layer, a photovoltaic conversion layer and a rear electrode layer. The front electrode layer, the photovoltaic conversion layer and the rear electrode layer are sequentially laminated on the light-transmissive substrate. A heat retention member covers the rear electrode layer, and a sealing layer is provided for sealing the rear electrode layer. (*See, Ouchida, Col. 3, lines 16-30*).

The Claims are Patentable Over the Cited References

The present application is generally directed to solar cell technology for building applications.

Claim 1:

As defined by amended independent Claim 1, a solar cell module includes a base member. A solar cell is provided on an upper surface of the base member such that a lower surface of the solar cell is mounted to the upper surface of the base member. An insulating support member is provided on a lower surface of the base member and configured to be laid together with tiles on the roof of a building. The base member is rectangular and includes a ridge-side surface projecting downwards with respect to a surface of a roof panel for mounting the solar cell module, an eaves-side surface, a trough-side surface and an anti-trough-side surface. The solar cell module includes a projecting part provided on the trough-side surface and the anti-trough-side surface of the base member, along the ridge-side to the eaves-side of the roof, and configured to overlap a trough-section of an adjacent tile or the trough section of an adjacent solar module.

The applied references do not disclose or suggest the features of the present invention as defined by amended independent Claim 1. In particular, the applied references do not disclose or suggest, "a solar cell provided on an upper surface of the base member such that a lower surface of the solar cell is mounted to the upper surface of the base member," as required by amended Claim 1.

Yoshitaka discloses, in FIGS. 2 and 3, that photovoltaic cell 2 is mounted to fixed slot 3 of cell frame 1. The photovoltaic cell 2 is not mounted to the upper surface of the cell frame 1. As shown in FIGS. 2 and 3, photovoltaic cell 2 is positioned within fixed slot 3 below the upper surface of cell frame 1.

In contrast, amended independent Claim 1 requires that the solar cell be provided on the upper surface of the base member such that the lower surface of the solar cell is mounted to the upper surface of the base member. (*See specification, FIGS. 1-3*). This allows the solar cell to be easily mounted to the base member of the solar cell module.

Yoshitaka does not disclose or suggest this feature of the present invention as required by amended independent Claim 1, and the ancillary Ouchida reference does not remedy the deficiencies of Yoshitaka.

Claim 7:

As defined by amended independent Claim 7, a method of laying solar cell modules together with tiles on the roof of a building includes laying a waterproof member having approximately the same height as the tile and a width narrower than that of the tile between each solar cell module and one tile which are laid adjacent in the direction of a gradient of the roof. The waterproof member has a trough section on one side. The trough section renders waterproof a junction between each solar cell module and the one tile, which are laid adjacent in the direction of the gradient of the roof. The waterproof member overlaps one side of a solar cell module and the one tile.

The applied references do not disclose or suggest the features of the present invention as defined by amended independent Claim 7. In particular, the applied references do not disclose or suggest, "wherein the waterproof member has a trough section on one side, said trough section rendering waterproof a junction between each solar cell module and the one tile, which are laid adjacent in the direction of the gradient of the roof, and said waterproof member overlaps one side of a solar cell module and the one tile," as required by amended Claim 7.

The Office Action purports that frame member 1C of Yoshitaka functions as a waterproof member between the solar cell module and the tile. However, frame member 1C is an integral part of cell frame 1. *See Yoshitaka; FIGS. 1-3; paragraph [0010]*. In Yoshitaka, the frame member 1C, flashing 12C, and waterproof sheet 4 are all provided at the eaves-side of the solar cell retaining tile A. This structure describes a junction between the top surface of the lower edge of the solar cell retaining tile A and the waterproof sheet 4 is rendered waterproof. This structure does not correspond to a waterproof member, which is interposed between the solar cell module and the tile which are laid adjacent in the direction of gradient of the roof, and serves to render the junction between the solar cell module and the tile waterproof, as in the present invention. Moreover, FIG. 4 of Yoshitaka shows a waterproof connecting body 7. However, as shown in FIG. 11, this waterproof connecting body is positioned with its recessed area facing upward between solar cell retaining tile A and roofing tile B. Therefore, the waterproof connecting body 7 of Yoshitaka does not correspond the waterproof member of the present invention, which overlaps one side of an adjacent solar tell module or tile to render the junction between the solar cell module and the tile waterproof.

In contrast, the waterproof member of amended independent Claim 7 is interposed between the solar cell module and the tile, which are laid adjacent in the direction of gradient of the roof, and is intended to make the junction between the solar cell module and the tile waterproof. As recited in amended independent Claim 7, the waterproof member overlaps one side of an adjacent solar cell module or tile to make a junction waterproof.

Yoshitaka does not disclose or suggest this feature of the present invention as required by amended independent Claim 7, and the ancillary Ouchida reference does not remedy the deficiencies of Yoshitaka.

Claim 13:

As defined by independent Claim 13, a method of laying solar cell modules together with tiles on a roof panel includes laying a solar cell module at upper edges of the tiles laid on the roof so that an upper portion of a ridge-side of the tile overlaps an eaves-side of said solar cell module. The method includes arranging fastening strips which prevent solar cell modules from being blown off between a lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of said tile. The method includes engaging the fastening strips to the lower portion of the eaves-side of said solar cell module and the upper portion of the ridge-side of said tile.

The applied references do not disclose or suggest the features of the present invention as defined by independent Claim 13. In particular, the applied references do not disclose or suggest, "arranging fastening strips which prevent solar cell modules from being blown off between a lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of said tile," as required by independent Claim 13. Moreover, the applied references do not disclose or suggest, "engaging the fastening strips to the lower portion of the eaves-side of said solar cell module and the upper portion of the ridge-side of said tile," as required by independent Claim 13.

Hiroshi discloses a recess 3 provided on the top surface of a roofing tile 2, and a solar cell module 4 is housed in the recess 3. Although a securing instrument 8 is provided on the roofing tile 2, this securing instrument 8 is intended to hold and secure the periphery of the solar cell module 4 so that the solar cell module 4 can be secured to the roofing tile 2. The securing instrument 8 of the Hiroshi holds and secures the periphery of the solar cell module 4 so that the solar cell module 4 does not lift from the roofing tile 2. The securing instrument does not function in the same manner as fastening strip 81 of the present invention.

In contrast, the claims of the present invention require arranging fastening strips between a lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of the tile and engaging the fastening strips to the lower portion of the eaves-side of said solar cell module and the upper portion of the ridge-side of said tile. As shown in FIG. 22A, fastening strips 81 are provided at the upper edges of the tiles 93 laid on the roof where the upper part (the ridge-side) of the tile 93 overlaps the eaves-side of the solar cell module 61. The fastening strips 81 are arranged between the lower part (the eaves-side) of the solar cell module 61 and the upper part (the ridge-side) of the tile 93 and is intended to engage the lower part (eaves-side) of the solar cell module 61 with the upper part (ridge-side) of the tile 93. Accordingly, each fastening strip 81 of the present invention includes a securing part secured to the roof through the ridge-side end of the tile 93 and an engaging part coupled to the eaves-side end of the solar cell module 61 laid at the upper edge of the tile 93.

Hiroshi does not disclose or suggest these features of the present invention as required by independent Claim 13.

Claim 6:

The rejections of Claim 6 under 35 USC §103(a) are moot in view of the cancellation of this claim.

Since the applied references do not disclose or suggest each and every feature of the present invention as required by independent Claims 1, 7, and 13, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of those claims.

Accordingly, independent Claims 1, 7, and 13 are believed to be in condition for allowance and such allowance is respectfully requested.

Applicants respectfully submit that independent Claim 17 is allowable for at least the same reasons as discussed above with reference to independent Claim 13.

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Accordingly, independent Claim 17 is believed to be in condition for allowance and such allowance is respectfully requested.

The remaining claims 4-5 and 14-16 including new Claims 21-24 depend either directly or indirectly from independent Claims 1 and 13 and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references and are also believed to be in condition for allowance and such allowance is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6809 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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